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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,974	11/11/2003	Mohammed Azam Hussain	MH01	2973
27797	7590	09/13/2005	EXAMINER	
RICHARD D. FUERLE 1711 W. RIVER RD. GRAND ISLAND, NY 14072			FORTUNA, ANA M	
			ART UNIT	PAPER NUMBER
			1723	

DATE MAILED: 09/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/605,974

Applicant(s)

HUSSAIN, MOHAMMED AZAM

Examiner

Ana M. Fortuna

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 5, 6, 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Michalski et al(US Patent 6,758,977)(hereinafter patent '977). Patent '977 discloses treating water, e.g. pond water, by softening by precipitating contaminants by treating the water with calcium carbonate, calcium oxide, calcium hydroxide, etc., separating precipitate by filtration, and further treating in a desalination step by reverse osmosis membrane or evaporation (abstract, column 3, lines 47-68, column 4, lines 1-4, 51-68, bridging column 5,lines 1-19, column 5, lines 59-66, and column 7, second paragraph). The concentration of precipitant of flocculant added is also disclosed to be within the claimed range, and includes more that one of the listed components e.g. calcium oxide, calcium carbonate, e.g. 150 ppm and 8 ppm (column 8, lines 23-26). As to claims 2 and 5, filtration before and after the treatment with the compound or compounds (flocculants) is disclosed in patent '977 (column 8, lines 43-50, and column 5, lines 62-68). As to claim 6, filtering through one or more reverse osmosis membranes is discussed in the sections above. As to claim 9, calcium oxide and hydroxide are discussed above.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-10, 12-15, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (4,036,749) in view of Hsiung (US patent 4,670,150)(hereinafter patent '150), or Al-Samadi (US Patent 6,113,797)(hereinafter '797). Anderson discloses a process of treating saline water, including sea water, brackish water, etc, (column 3, lines 12-29), the process includes pretreatment by screening or filtration (column 3, lines 29-32), addition of magnesium hydroxide in an amount of 0.05 to about 7.5 %, to form a precipitate containing calcium, which is further separated by suitable filtration (column 2, lines 28-68, column 4, lines 3-64, element 22). Further ph adjustment of the pretreated water and desalination by reverse osmosis or Flash distillation (evaporation), is also disclosed in Anderson (column 5, lines 7-35). Adjusting the pH previous to the desalination step within the pH range claimed is also disclosed (column 7, last paragraph bridging column 8, lines 12-7). The feed water composition is inherent of both water sources, e.g. sea water and brackish water. Further treatment to precipitate magnesium hydroxide by the addition of calcium hydroxide is disclosed (column 6, last paragraph bridging column 7, lines 1-5). It would have been obvious to one skilled in the art at the time the invention was made to add a

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flocculant or precipitation agent well known in the art to precipitate a particular component from a water or brine depending on the type of precipitate desired and the particular water composition, e.g. one skilled in the art, based on Anderson's disclosure it would have been motivated to alternatively use calcium hydroxide in the first precipitation step, e.g. to remove magnesium and sulfates as calcium sulfate.

As to claim 6, recycling part of the brine from the desalination step back to the process is disclosed in Anderson (see column 8, third paragraph).

Regarding claims 7-8, the pH of the water is adjusted to 8.5 in Anderson (column 4, lines 10-11), and after the separation of precipitate solids the pH is further adjusted, to a value of 6 (column 9, lines 26-31).

As to claims 11-12, the sources are discussed above.

Regarding claim 14, Anderson teaches multiple precipitation with conventional precipitants (or flocculating agents) for recovery of a predetermined salt or oxide from the process, e.g. calcium oxide, magnesium oxide, calcium sulfate, etc. Adjusting the amount of precipitant or flocculant added to the water or brine is dependent on the concentration of the particular compound in the water or brine, see Anderson (column 4, lines 10-14).

Anderson fails to disclose the addition of calcium oxide or sodium carbonate to the water or brine as coagulant or precipitant.

Patent '50 teaches water softening by adding calcium carbonate or magnesium hydroxide, and further filtration; additional flocculants such as, calcium hydroxide, calcium sulfate, etc., are also suggested to remove scale forming agents (column 4,

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lines 31-52, column 6, 5, lines 60-68 bridging with column 6, lines 1-15). It would have been further obvious to one skilled in the art at the time the invention was made to use any of these flocculating/precipitating agents to remove additional contaminants from the water.

Patent '797 teaches treating water by precipitation prior to membrane filtration by the addition of sodium hydroxide, calcium hydroxide, magnesium hydroxide and its combination for softening water (column 12, last paragraph, and column 13, lines 1-20). It would have been obvious to one skilled in the art at the time the invention was made to use a combination of these precipitating agents, as claimed in claim 15 to remove solids from the treated stream, e.g. silica etc., as suggested in '797.

As to claim 18, combining any of the precipitants for softening of water together or in subsequent steps and in varying amounts depending from their concentration in the treated water it would have been obvious to one skilled in the art at the time the invention was made.

5. Claims 14-17, 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Michalski et al (US Patent 6,758,977)(hereinafter patent '977) as applied to claim 1 above, and further in view of Anderson (4,036,749) in view of Hsiung (US patent 4,670,150)(hereinafter patent '150), or Al-Samadi (US Patent 6,113,797)(hereinafter '797) discussed in the paragraph above. Patent '977 teaches calcium carbonate, calcium oxide, calcium hydroxide as precipitant, Anderson discloses magnesium hydroxide, calcium hydroxide, '797 discloses sodium hydroxide, calcium hydroxide, etc., and '150 discloses calcium sulfate, calcium hydroxide, etc. It would have been obvious

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to one skilled in the art at the time the invention was made to combine the above precipitating agents, as suggested in 797, e.g. for removing multiple components from water or brine, and for removing the suggested components specific to react with the particular agent as indicated in the discussed prior art, e.g. calcium oxide remove magnesium, calcium, silica, etc. from the water. The alternative use of sodium hydroxide or calcium hydroxide is suggested in '797 as equivalents. Adjusting the corresponding amounts of the precipitating or coagulating agent as discussed above will be depending on the concentration of the contaminant wished to be removed from the water or brine.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Michalski et al (US Patent 6,758,977)(hereinafter patent '977) as applied to claim 1 above, and/or Anderson (4,036,749) in view of Hsiung (US patent 4,670,150)(hereinafter patent '150), or Al-Samadi (US Patent 6,113,797)(hereinafter '797) as further in view of Tonelli et al (6,126,834). Tonelli discloses a process of treating a feed water that is pretreated, by desalination in a reverse osmosis membrane at temperatures between 45 to 80 degree C (column 7, lines 54-68, column 5, lines 13-21). It would have been obvious to one skilled in the art at the time the invention was made to filter the water in a desalination unit at the temperature of 70 degree C as claimed, and suggested by Tonelli, since scale components are removed by the precipitation step. Furthermore, temperature does seem to be critical to the desalination process. One skilled in the art at the time the invention was made it would

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have been motivated to perform the membrane filtration at temperature from ambient to 85 degree C., with higher membrane flux with increase temperature.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reference 4,170,328 is cited as teaching using calcium hydroxide for removing boron from salt. Patent 6,929,749 teaches removing silica by adding calcium carbonate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana M. Fortuna whose telephone number is (571) 272-1141. The examiner can normally be reached on 9:30-6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

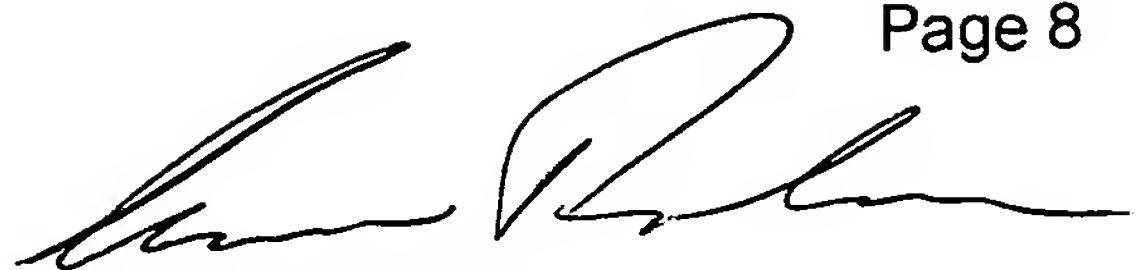
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Ana M Fortuna

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A handwritten signature in black ink, consisting of a series of loops and strokes, positioned above the printed name of the Primary Examiner.

Primary Examiner
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AF

September 08, 2005